Amendment to the Claims

1. (***Cancelled***) A catheter comprising:

(a) an elongate catheter body having a distal end and a proximal end, the elongate catheter body including an indicator lumen and an insulating lumen, the indicator lumen having a restricted cross sectional area adjacent the distal end of the elongate catheter body;

(b) a dilution sensor connected to the elongate catheter body; and

(c) a guide wire extending through the restricted cross sectional area of the indicator lumen to project from the distal end of the elongate catheter body.

2. (***Cancelled***) The catheter of Claim 1, wherein the dilution sensor is a thermistor.

3. (***Cancelled***) The catheter of Claim 1, wherein the insulating lumen is at least partially intermediate the indicator lumen and the dilution sensor.

4. (***Cancelled***) The catheter of Claim 1, wherein the elongate catheter body is configured as a retrograde catheter.

5. (Currently amended) A catheter <u>assembly</u> comprising:

(a) an elongate catheter body having a distal end and a proximal end, the elongate catheter body including an indicator lumen <u>having a terminal port and a radial injection port intermediate the terminal port and the proximal end of the catheter body</u>; [[and]]

(b) a guide wire extending through a length of the indicator lumen; and

(c) a controller connected to one of the catheter body and the guide wire, the controller selected to compensate for passage of an indicator from the indicator lumen through the terminal port.

6. (Currently amended) The catheter assembly of Claim 5, wherein the indicator lumen terminates at the distal end of the elongate catheter body.

7. (Currently amended) The catheter assembly of Claim 5, wherein the indicator lumen has a reduced cross sectional area adjacent the distal end of the elongate catheter body.

8. (Currently amended) The catheter assembly of Claim 5, wherein the indicator lumen has a reduced cross sectional area adjacent the distal end of the elongate catheter body and the guide wire is sized to be slideably received through the reduced cross sectional area.

9. (Currently amended) The catheter assembly of Claim 5, wherein the indicator lumen has a reduced cross sectional area adjacent the distal end of the elongate catheter body and the guide wire is sized to reduce passage of [[an]] the indicator through the reduced cross sectional area of the indicator lumen.

10. (Currently amended) The catheter assembly of Claim 5, wherein the indicator lumen terminates adjacent the distal end of the elongate catheter body.

11. (***Cancelled***) The catheter of Claim 5, wherein the indicator lumen includes a terminal port at the distal end of the elongate catheter body and a radial injection port spaced from the terminal port.

12. (Currently amended) The catheter <u>assembly</u> of Claim 5, further comprising a dilution sensor connected to the elongate catheter body.

13. (Currently amended) The catheter <u>assembly</u> of Claim 12, wherein the dilution sensor is a thermistor.

14. (Currently amended) A method of introducing an indicator through a catheter, the method comprising:

(a) passing a guide wire through an indicator lumen in an elongate catheter body <u>to pass a portion of the guide wire through a terminal port of the indicator lumen</u>; [[and]]

(b) passing the indicator through the indicator lumen to pass from the elongate catheter body <u>through the terminal port and an injection port intermediate the terminal port and a proximal end of the catheter body; and</u>

(c) <u>compensating for passage of the indicator through the terminal port</u>.

15. (***Cancelled***) The method of Claim 14, further comprising simultaneously passing the guide wire and the indicator through the indicator lumen.

16. (Currently amended) The method of Claim 14, further comprising passing the guide wire through a reduced cross sectional area of the indicator lumen ~~to reduce passage of the indicator there through~~.

17. (Currently amended) The method of Claim 14, further comprising passing the indicator through the indicator lumen to contact a portion of ~~simultaneously locating~~ the guide wire ~~and the indicator in the indicator lumen~~.

18. (Currently amended) The method of Claim 14, further comprising passing the guide wire through a reduced cross sectional area of the indicator lumen to increase a flow of the indicator through the ~~a radial~~ injection port.

19. (New) The method of Claim 14, wherein compensating for passage of the indicator through terminal port includes compensating for a volume of the indicator passing through the terminal port.

20. (New) The method of Claim 14, wherein compensating for passage of the indicator through terminal port includes compensating for a volume of the indicator passing through the terminal port corresponding to the relationship $Q = \frac{k(T_{b-}T_i) \cdot V(1-a)}{S}$, where Q is a blood flow rate, k is a coefficient related to thermal capacity of a measured flow and the indicator, T_b is the temperature of the measured flow prior to injection, T_i is the temperature of the indicator prior to entering the measured flow, V is the volume of the indicator, S is the area under the temperature versus time curve resulting from the mixing of the indicator and a is the portion of the indicator passing through the terminal port.

21. (New) The method of Claim 14, wherein compensating for passage of the indicator through terminal port includes compensating for a thermal effect of the indicator passing through the terminal port.

22. (New) The method of Claim 14, wherein compensating for passage of the indicator through terminal port includes compensating for a thermal effect of the indicator passing through the terminal port corresponding to the relationship $Q = \frac{k(T_{b-}T_i) \cdot V(1-a)}{(S_m - S_{in})}$, where Q is a blood flow rate, k is a coefficient related to thermal capacity of a measured flow and the indicator, T_b is the temperature of the measured flow prior to injection, T_i is the temperature of the indicator prior to entering the measured flow, V is the volume of the indicator, S_m is the total area under the temperature versus time curve resulting from the mixing of the indicator, S_{in} is the part of the area under the dilution curve related to a cooling thermal change of a sensor inside the catheter body and a is the portion of the indicator passing through the terminal port.

23. (New) The catheter assembly of Claim 5, wherein a portion of the guide wire is in the terminal port.

24. (New) The catheter assembly of Claim 5, wherein the catheter body further includes a spacer lumen intermediate the distal end and the proximal end.

25. (New) The catheter assembly of Claim 5, wherein a portion of the guide wire is disposed in the terminal port and the controller is selected to compensate for passage of the indicator through the terminal port.

26. (New) The catheter assembly of Claim 5, wherein the controller is selected to compensate for passage of a volume of the indicator through the terminal port corresponding to the relationship $Q = \frac{k(T_{b-}T_i) \cdot V(1-a)}{S}$, where Q is a blood flow rate, k is a coefficient related to thermal capacity of a measured flow and the indicator, T_b is the temperature of the measured flow prior to injection, T_i is the temperature of the indicator prior to entering the measured flow, V is the volume of the indicator, S is the area under the temperature versus time curve resulting from the mixing of the indicator and a is the portion of the indicator passing through the terminal port.

27. (New) The catheter assembly of Claim 5, wherein the controller is selected to compensate for passage of a volume of the indicator through the terminal port corresponding to the relationship $Q = \frac{k(T_{b-}T_i) \cdot V(1-a)}{(S_m - S_{in})}$, where Q is a blood flow rate, k is a coefficient related to thermal capacity of a measured flow and the indicator, T_b is the temperature of the measured flow prior to injection, T_i is the temperature of the indicator prior to entering the measured flow, V is the volume of the indicator, S_m is the total area under the temperature versus time curve resulting from the mixing of the indicator, S_{in} is the part of the area

under the dilution curve related to a cooling of a sensor inside the catheter body and a is the portion of the indicator passing through the terminal port.